

Chapter 2 Alternatives

2.1 Alternative Development Process

In November 1998, the Metropolitan Transit Development Board (MTDB) issued a Major Investment Study (MIS) for the north Interstate 15 (I-15) corridor. This study was a joint effort by the San Diego Association of Governments (SANDAG), the North County Transit District (NCTD), the California Department of Transportation (The Department) and MTDB to identify, develop, and analyze alternatives that would address congestion problems. The public and community groups also participated. The MIS recommended HOV/Managed Lanes in the median of I-15 with a High Speed Bus Rapid Transit System (BRTS).

A value analysis study (VA) was conducted in June 1999 for the I-15 Corridor Managed Lane Project. The purpose of the VA was analyze potential alternatives that would address the serious congestion problems occurring in the I-15 corridor and to obtain consensus with stakeholders on a desired lane configuration. As a result of the meeting, 15 alternatives and design suggestions were presented as possible improvement plans for the corridor.

Through the MIS and VA process, alternatives were created that would help to reduce congestion within the corridor. These alternatives were discussed and subsequently eliminated or marked for further consideration in the Project Study Report (PSR) dated September 1998 and in the Project Report (PR) dated October 2001, based on their ability to meet the purpose and need for the project.

2.2 Alternatives Selected for Detailed Study

The Managed Lanes Alternative is the only build alternative. However, final selection of this alternative would not be made until after the full evaluation of environmental impacts and full consideration of public hearing comments. The final selection would be published in the Final Negative Declaration/Finding of No Significant Impact.

The Managed Lanes Alternative would meet the project objectives and the purpose and need as described in Section 1.1. It would meet the Department's commitments to provide opportunities for other modes of travel and to manage future congestion.

In addition to the Managed Lanes Alternative, the No Build and the Transportation System Management (TSM) Alternatives were analyzed. Following is a discussion of these three alternatives that are still under consideration.

2.2.1 Managed Lanes Alternative

This alternative proposes to construct four Managed Lanes (ML) in the freeway median of I-15 from 2.4 kilometer (1.5 mile) south of SR-163 in the City of San Diego to 0.5 kilometers (0.3 miles) north of SR-78 in the City of Escondido. This is a total project length of 34.0 kilometers (21.1 miles).

Physical Features

Major project features are shown on Figures 2-1 through 2-28. These figures have an aerial photo background to allow easy orientation to the adjacent environment.

Existing freeway lanes appear as white. The managed lane widening can be seen by noting the total widths of red (main lanes), yellow (shoulders), blue (managed lanes), and dark green (ramps). Grading limits of new slopes appear as small red dots.

Following is a description of these physical features.

Widening/Right of Way

Through the project development process it was determined that in order to expedite the proposed project, to limit funding required, and to minimize environmental impacts, the project would be constructed primarily within State right-of-way. This would avoid the potential for property acquisitions, relocations, and business disruptions throughout the corridor. The proposed project requires outside widening of the existing freeway lanes on at least one side and sometimes both sides. A small amount of new right-of-way would be required for temporary construction easements, grading and drainage easements, retaining wall footing, and soil-nail and tieback (wall supports) easements. The proposed project extends outside of State right-of-way at a few locations, but no homes or businesses would be displaced. Table 2-1: Required Easements, shows the locations where easements would be required.

Table 2-1: Required Easements

Parcel #	Location	Temporary/ Permanent	Reason Required
32209	Bernardo Center Dr	Permanent	slope easement
32368	N. Rancho Bernardo Rd UC	Permanent	soil nail easement
32374-1	West Bernardo Dr	Permanent	berm easement
32374-2	West Bernardo Dr	Temporary	construction easement
32374-3	West Ber Dr/Green Val Crk S	Temporary	construction easement
32375	Lake Hodges	Temporary	construction easement
32224	Via Rancho Pkwy	Permanent	soil nail easement
32605-1	Del Lago/ Kit Carson Pk	Temporary	construction easement
32605-2	Beethoven Dr	Temporary	construction easement

All easement locations were studied as part of the project footprint and are included in the impact and mitigation discussions found in Chapter 3: Affected Environment, Environmental Consequences, and Measures to Minimize Harm.

Auxiliary/Added Lanes

The project also proposes auxiliary and/or added (auxiliary/added) lanes at various areas within the corridor. Auxiliary lanes are lanes that extend from one intersection to the next, while added lanes extend through intersections. These auxiliary /added lanes would be studied and constructed as part of the ML project. The ML project footprint includes all of the auxiliary /added lanes identified, however, funding for the lanes may be identified separately through State Highway Operation and Protection Program (SHOPP), Regional Surface Transportation System (RSTP), Transportation Improvement Program (TIP), or other funding sources. Locations of the auxiliary/added lanes can be seen on Figures 1-4a and 1-4b entitled 3+1 Managed Lanes traffic flow.

Auxiliary/added lanes would be constructed at the following locations:

Northbound

- Added lane from the Miramar Way off ramp to the Miramar Way On Ramp
- Auxiliary lane from Miramar Way on ramp to the Miramar Road/Pomerado Road off ramp
- Added lane from the Carroll Canyon Road off ramp to the Mira Mesa Boulevard loop on ramp
- Auxiliary lane from Mira Mesa Boulevard to Mercy Road/Scripps Poway parkway off ramp
- Auxiliary lane from Scripps Poway Parkway/Mercy Road on ramp to Rancho Penasquitos Boulevard/Poway Road off ramp
- Added lane from Rancho Penasquitos Boulevard/Poway Road off ramp to SR-56 off ramp
- Auxiliary lane from SR-56 on ramp to Carmel Mountain Road off ramp
- Added lane from Carmel Mountain Road off ramp to just north of the Carmel Mountain Road on ramp
- Auxiliary lane from Camino del Norte on ramp to Bernardo Center Drive off ramp
- Added lane from Bernardo Center Drive off ramp to the Bernardo Center Drive on ramp
- Added lane from the Rancho Bernardo Road loop on ramp to Via Rancho Parkway off ramp
- Added lane from Ninth Avenue off ramp to Ninth Avenue on ramp
- Added lane from Ninth Avenue on ramp to Valley Parkway on ramp

Southbound

- Added lane from north of Valley Parkway loop on ramp to Citracado Parkway off ramp
- Added lane from Via Rancho Parkway on ramp to the Duenda Road Overcrossing
- Added lane from Carmel Mountain Road off ramp to Carmel Mountain Road on ramp
- Auxiliary lane from Carmel Mountain Road on ramp to the westbound SR-56 transition
- Auxiliary lane from the SR-56 on ramp to Rancho Penasquitos Boulevard/Poway Road off ramp
- Auxiliary lane from Rancho Penasquitos Boulevard/Poway Road on ramp to Mercy Road/Scripps Poway Parkway off ramp
- Added lane from Mira Mesa Boulevard off ramp to the Mira Mesa Boulevard loop on ramp
- Auxiliary lane from Mira Mesa Boulevard loop on ramp to Mira Mesa Boulevard on ramp
- Auxiliary lane from Mira Mesa Boulevard on ramp to the Carroll Canyon Road off ramp
- Added lane from Carroll Canyon Road off ramp to the Carroll Canyon Road on ramp
- Auxiliary lane from Carroll Canyon Road on ramp to Miramar Road/Pomerado Road off ramp
- Auxiliary lane from Miramar Road/Pomerado Road off ramp to Miramar Road/Pomerado Road loop on ramp
- Auxiliary lane from Miramar Road/Pomerado loop on ramp to Miramar Way off ramp

Cross Section

The cross-section (See Figures 2-29 and 2-30) for the ML would include standard portland cement concrete (PCC) lanes and PCC shoulders for all widening and new construction. Standards for new construction on freeways is 3.6 meters (12 feet) for lanes and 3.0 meters (10 feet) for shoulders. There would be some exceptions to using PCC lanes and shoulders in order to match existing lanes. The ML would be separated from the general use freeway lanes by a type 60 series median concrete barrier. This would aid in the ability to manage the lanes, increase driver comfort by separating the lanes from the main lane traffic, and allow a protected location for the many required hardware features (video cameras, possible future electronic toll readers, changeable message signs, etc.) which would be mounted safely on the concrete barrier. A standard lane width of 4.2 meters (14.0 feet) is used to allow for half of the 0.6 meter (2.0 foot) width of the moveable concrete barrier. This allows for a 3.9 meter (13.0 feet) lane width adjacent to the moveable barrier.

Slopes

The proposed project would require that extensive grading occur in order to accommodate the widening. Major cut or fill slopes can be found in Appendix H. Major cut or fill slopes are defined as slopes that are greater than 4.6 meters (15 feet) in height and 183 meters (600 feet) or greater in length.

Non-Standard Features

There are some locations where non-standard geometric features, such as reduced lane and shoulder widths, would be needed. These features would be used to avoid purchase of right-of-way, to avoid replacing structures or existing main lanes, to avoid major realignments of the freeway, to reduce disruption to surrounding communities, to avoid home or business displacement, to maintain acceptable level of service during construction, and to reduce project cost. A summary of the non-standard features is shown in Appendix C and further discussion occurs in the Nonstandard mandatory and Advisory Design Features Section found in this chapter.

The Advisory Design Exception Fact Sheet for these locations was approved by the Department on June 12, 2002. The Mandatory Design Exception Fact Sheet was approved by Headquarters on June 11, 2002. Additionally, the Fact Sheet and new revised access points were reviewed and considered acceptable by the Federal Highway Administration (FHWA) on October 2, 2002.

Barriers

A moveable barrier system is proposed so the four lanes can be oriented in three different configurations based on traffic needs. The configurations are:

- One lane northbound and three lanes southbound
- Two lanes northbound and two lanes southbound
- Three lanes northbound and one lane southbound

It is estimated that by the year 2010, a three southbound and one northbound configuration would be required in the morning peak period and a three northbound and one southbound configuration would be needed in the afternoon peak period.

The moveable barrier would be placed from 0.6 kilometer (0.4 mile) south of SR-163 to Citracado Parkway, a distance of 28.1 kilometers (17.5 miles).

From Citracado Parkway to Hale Avenue the four lanes would be permanently oriented as two northbound and two southbound lanes with a fixed concrete barrier in the median and no fixed barrier separating the lanes from the main freeway lanes. From Hale Avenue to SR-78 only one HOV lane in each direction is proposed as the demand drops off at SR-78.

At the southern terminus, in the southbound direction, two lanes in the median would be separated by fixed barrier for a distance of about 340 meters (1115.5 feet). These lanes would then transition to one southbound lane that would be carried an additional 300 meters (984.2 feet). This lane would then merge into the number one southbound main lane with a standard lane drop just south of the southbound exit to SR-52 as demand reduces at SR-52.

Two barrier transfer machines (BTM) are needed for standard operations; however, it is proposed to purchase three BTM machines to allow for long-term maintenance without losing service. At the south end of the project, the BTM would be stored and maintained at the Automated Highway Systems South Control Yard (See figure 2-2).

A new overcrossing structure would be required south of “H” Avenue for the MB machines so they can move from the median of I-15 to the west side of I-15 (See figure 2-2).

The BTM machines would then travel along the southbound I-15 shoulder towards SR-163. There is an existing maintenance dirt road along SR-163 that leads to the South Control Yard. This road would be paved to allow for movement of the BTM machines. At the north end of the project, at Citracado Parkway, the BTM machines would be stored in an uncovered area within the existing median just south of the existing structures (See figure 2-24). This location is out of view of the traveling public and allows the BTM machines to access Citracado Parkway, if needed.

Structures

Many existing overcrossing structures in the I-15 corridor would need to be replaced as the Managed Lane Project has no provision for a structure column in the median. Since many of these structures are at interchanges that have exceeded traffic capacity at the ramp intersections, this project proposes to replace the structure with a wider structure to improve the traffic capacity to meet 2020 demand. Locations of the structures can be seen on Figures 1-4a and 1-4b entitled 3+1 Managed Lanes traffic flow. The following table, Table 2-2: Bridge Summary, lists all existing overcrossing structures within the project limits and summarizes the work that would occur at each structure.

Table 2-2: Bridge Summary

NAME	REPLACE/ REMAIN
H Avenue OC	Remain
SR 163/I-15 separation	Remain
SR 163/I-15 Reversible lanes connectors	Remain
Ammo Road OC	Remain
Miramar Way OC	Remain
Pomerado Rd/ Miramar Rd OC	Replace
Carroll Canyon Road OC	Replace
Rancho Peñasquitos Blvd/ Poway Rd	Replace
SR-56/ I-15 Separation OC	Replace
Carmel Mountain Road OC	Replace
Duenda Road OC	Replace
Southbound I-15 at Bernardo Center Drive	Replace
Pomerado Road/(Highland Valley Rd)	Replace
Lake Hodges Bridge	Replace
Via Rancho Parkway OC	Replace
North County Fair/ (Del Lago Blvd)	Replace

The earlier concept for the overcrossing structures was to modify them rather than replace them. Modifying the structures would have required not only changes to bridge structures themselves, but would have also required the profile of the existing reversible lanes and new managed lanes to be lowered. While modifying the bridge structures would cause less disruption during construction, replacing the structure could ultimately better meet 2020 traffic demand since it would allow construction of wider bridges.

Undercrossing structures would be widened usually on both the inside and outside. The Bernardo Center Drive southbound undercrossing structure is currently experiencing some settlement at the abutments. The ML project would replace the southbound structure with a wider structure to accommodate the larger cross-section. The Department's Engineering Service Center has currently recommended replacing this bridge as widening would not be feasible with the current abutment settlement problems; thus, this structure would be replaced in the future under a separate project even if the No-build Alternative is selected.

Noise Barriers/ Retaining Walls

Noise barriers are proposed for five locations along the corridor as described in Section 3.7. Retaining walls would be utilized in numerous locations throughout the corridor to reduce property acquisition impacts, to stabilize slopes, to minimize biological impacts, and to accommodate engineering structures. Locations of retaining walls and noise barriers can be found on the project features maps, Figures 2-1 through 2-28. .

Ramp Realignments

Ramp realignments would be required at several locations to accommodate additional widening on these ramps and to accommodate widening of the main lanes. Widening would be required at the following ramps:

- Miramar Way southbound on and off ramps
- Miramar Road/Pomerado Road northbound and southbound on and off ramps
- Carroll Canyon Road northbound and southbound on and off ramps
- Mira Mesa Boulevard northbound and southbound on and off ramps
- Scripps Poway Parkway/Mercy Road southbound on and off ramps

- Poway Road northbound and southbound on and off ramps
- 15/56 Express lane transition northbound off ramp and southbound on ramp
- Route 56/Ted Williams Parkway northbound and southbound on and off ramps
- Carmel Mountain Road northbound and southbound on and off ramps
- Camino del Norte northbound and southbound on and off ramps
- Bernardo Center Drive northbound and southbound on and off ramps
- Rancho Bernardo northbound and southbound on and off ramps
- Highland Valley Road northbound and southbound on and off ramps
- Via Rancho Parkway northbound and southbound on and off ramps
- Citracado Parkway northbound and southbound on and off ramps
- Ninth Avenue northbound and southbound on and off ramps
- Valley parkway northbound and southbound on and off ramps
- 15/78 Separation northbound on ramp and southbound on ramp

Utility Relocations

Utility relocations would be required at several locations. The only utility relocations that would extend outside of State right-of-way are located at Green Valley Creek Bridge. The 12 kV power lines that run under Green Valley Bridge would be removed and would be temporarily rerouted under the structure. This relocation would be necessary to protect workers from contacting the lines while widening the bridge. In addition, a 100 millimeter (4 inch) gas line would have to be rerouted under the bridge due to new piers and construction grading. Permanent relocations would be required for the following utilities

- 400 millimeter (16 inch) Gas Line at Camino del Norte Undercrossing
- Telephone and television lines at Bernardo Center Drive

- Gas line at Rancho Bernardo Drive Undercrossing
- 400 millimeter (16 inch) gas line north of Carmel Mountain Road overcrossing

Other minor utility relocations would be necessary within State right-of-way and would not create any additional environmental impacts. These relocations include the temporary relocation of existing underground electric and telephone lines at the Carmel Mountain Road overcrossing. Additional temporary utility relocations would be required at Ninth Avenue undercrossing for existing gas, electric, television, sewer, and water lines.

Drainage Extensions

Due to the extensive outside widening that would occur with the Managed Lanes Project most of the existing drainage culverts would need to be extended, replaced, or lined depending on their condition. The majority of these structures are small culverts ranging from 458 to 915 millimeters (18 to 36 inches) that drain water off of the freeway lanes. Impacts to all major drainages are described in Section 3.9, Wetlands and Waters of the United States.

Signs and Signals

Additional signs and signals would be required to ensure that motorists can easily use the proposed managed lanes. These would include informational signs such as changeable message signs (CMS), signs informing the user of upcoming access points, and ramp meters. In addition new signals would be located at the southbound ramp at Highland Valley, at the Del Lago DAR, and at Hale Avenue DAR/Simpson Way.

Value Pricing Technologies

Additional equipment would be required if the Value Pricing Program is approved and implemented. The technology to be used is Electronic Toll Collection (ETC) equipment, which would include overhead support structures and antennas to read transponders, variable message signs to display the tolls, loop detectors to measure traffic volume and speed, and closed circuit cameras (CCTV) to view traffic on the facility and to help determine violation rates.

Operational Features

Operational features are those features which assist in the efficient operation of the facility without increasing capacity. Following is a description of these features

Access

Two types of access into and out of the ML would be incorporated. The first type would be called intermediate access points (IAP). The IAP are access points that are at-grade and adjacent to the freeway main lanes. To exit the ML facility using the IAP, traffic would enter a dedicated weaving lane of 305 to 610 meters (100 to 2000 feet) in length, depending on traffic volumes. Traffic would then weave from this lane into the fast lane on the freeway main lanes (see Figures 2-29 and Figure 2-30). Traffic entering the ML would weave into the weaving lane from the fast lane on the freeway main lane and then weave into the ML. There are six northbound and six southbound IAPs planned. They would be constructed at the following locations:

- Northbound between Carroll Canyon and Mira Mesa Boulevard
- Northbound at the Hillery Drive Direct Access Ramp (DAR),
- Northbound between SR-56 and Carmel Mountain Road
- Northbound at Camino del Norte
- Northbound at Green Valley Creek Bridge
- Northbound between Citracado Parkway and Ninth Avenue
- Southbound between Carroll Canyon Road and Mira Mesa Boulevard near the Hillery Drive DAR
- Southbound between Mira Mesa Boulevard and Scripps Poway Parkway
- Southbound between Scripps Poway Parkway and Poway Road
- Southbound between Carmel Mountain Road and Camino del Norte
- Southbound at Rancho Bernardo Road
- Southbound between Citracado Parkway and Ninth Avenue.

The other type of access is a Direct Access Ramp (DAR) into the ML from a grade separated interchange. Figures 2-32 and 2-33 show an example of what the DAR structures would look like. The DAR shown is the Rancho Bernardo DAR and the Rancho Bernardo Transit Station that is proposed by MTDB. It would be typical of other DARs with the exception that the Hale Ave and Del Lago DARs would be developed from existing city streets. Also, it differs from the Hale Avenue DAR which would be below the freeway grade. The proposed DARs have been located to enhance HOV and bus access. The DARs would encourage carpool usage and would accommodate the Bus Rapid Transit System proposed by MTDB. Busses would be allowed to utilize the managed lanes speeding up commute times while reducing the number of vehicles utilizing the I-15 mixed use lanes. The DAR would also encourage carpooling by offering easy access into the managed lanes as an incentive for carpooling. The five proposed DARs are located at the following locations:

- Hillery Drive DAR (in Mira Mesa) Figure 2-7
- Sabre Springs DAR (in Sabre Springs) Figure 2-12
- Rancho Bernardo DAR (in Rancho Bernardo) Figure 2-17
- Del Lago DAR (near North County Fair, Escondido) Figure 2-22
- Hale Avenue DAR (near SR-78, Escondido) Figure 2-27

The proposed project would construct direct access ramps to and from the managed lanes to Hale Avenue. Ramps would only be constructed to the south of Hale Avenue (on ramp to southbound managed lanes, and an off ramp from northbound managed lanes) since the managed lanes end just north of this location. This would be the only location where the direct access ramps are below the freeway grade as Hale Avenue crosses under I-15. The existing Escondido Transit Station operated by the NCTD would be served by these ramps.

The proposed DAR ramps are shown in green on the project features maps (see figures 2-7, 2-12, 2-17, 2-22, and 2-27). In addition to work within the existing freeway right-of-way, access roads would include road construction and right-of-way to connect to local streets or to transit stations. These additions are also show in green on the project feature maps and are described below.

- Hillery Drive DAR:
The connection for this DAR would be approximately 30.5 meters (100 feet) beyond the existing freeway right-of-way. Hillery Drive and the transit center work are proposed by MTDB with separate environmental review. Right-of-way for a portion of Hillery Drive would be acquired as part of the managed lanes project as shown on the project features maps.
- Sabre Springs DAR :
The connection for this DAR would extend from the existing freeway right-of-way for about a distance of 160 meters (525 feet) to the transit center. The transit center and DAR are proposed by MTDB and would have separate environmental review. Right-of-way for the connection ramp would be acquired by MTDB.
- Rancho Bernardo DAR:
Other than the DAR no additional work would occur here. The transit center would be constructed by MTDB with separate environmental review.
- Del Lago DAR:
This proposed ramp would connect directly to Del Lago Boulevard. No road work is proposed beyond the freeway right-of-way. However, the existing Park-and-Ride lot would be expanded (see Figure 2-22). The expansion of the Park-and-Ride lot is proposed by MTDB and would require separate environmental review.
- Hale Avenue DAR :
No Managed Lanes construction would extend beyond the freeway right-of-way because the proposed ramps would connect to Hale Avenue. The Escondido Transit Center is an existing facility located at the intersection of Valley Parkway and Quince Street which is located slightly off the project features maps (figure 2-27). Local streets may be improved by others at a later time for better access to the center and would require separate environmental review.

The DARs would be compatible with transit centers that are proposed at or near these locations. The transit centers are discussed further in the cumulative impacts section of this report (See Chapter 4).

Enforcement / Emergency Vehicles

For the majority of the project length, a continuous 3.0 meter (10 foot) shoulder width would be provided that can be used for enforcement by the California Highway Patrol (CHP).

In addition, at the DAR overcrossings, a two-vehicle CHP enforcement team could be set up, with one officer on the overcrossing and another officer on the ramp ready to pursue violators.

Enforcement is proposed to be completed by the California Highway Patrol (CHP) through visual observation. Electronic tools, such as a hand-held Personal Digital Assistant that would receive a signal from the Electronic Toll Collection Device, would be investigated to assist the CHP officers. All proposed DARs include enforcement areas for CHP vehicles. Opportunity for automated enforcement is being studied by SANDAG through the Value Pricing Program and recommendations would be made for appropriate automated enforcement technologies.

CHP officers and emergency vehicles would be able to easily access the ML or the main lanes at the numerous access points. In addition, CHP vehicles would be able to utilize the DARs to quickly change direction of travel.

Nonstandard Mandatory and Advisory Design Features

Design exceptions would be needed in order to avoid rebuilding main freeway lanes, avoid replacing some structures, reduce right-of-way purchase, reduce disruption to the surrounding communities, maintain an acceptable level of service during construction, and reduce project costs. At numerous locations, design exceptions are required due to right-of-way constraints. In order to avoid high costs and extensive timelines associated with property displacement, it was determined that the project would be designed to fit in the existing right-of-way, thus, necessitating the use of design exceptions. All of the nonstandard design exceptions are discussed below and are shown with further details in Appendix C: Summary of Nonstandard Design Features.

Following are the major design exceptions that would be required on the ML Project. Specific details and descriptions for each of the required design exceptions follows this general list.

- Shoulder Width Reductions
- Sight Distance Reductions
- Interchange Spacing
- Horizontal Clearance
- Superelevation Exceptions (Pitch of the road)
- Vertical Clearance Exceptions
- Ramp Departure Angles
- Converging Dimensions for Entrance Ramps

- Vertical Alignment
- Median Width
- Two Lane Exit Ramp Standards (number of lanes required on ramps)
- Temporary Vertical Clearance (Railroad)
- Auxiliary Lanes

Shoulder width reductions would be required from the standard widths, which currently range from 1.2-3.0 meters (4.0-10.0000000000 feet). Shoulder width reductions would be required due to right-of-way constraints. The locations where right-of-way constraints would require nonstandard shoulder widths are:

- Between Sabre Springs DAR and 15/56 Separation on the northbound inside mainline
- Carmel Mountain Road northbound and southbound inside mainline
- Duenda Road overcrossing on the northbound and southbound inside mainline
- West Bernardo Drive overcrossing on the northbound and southbound inside mainline
- Via Rancho Parkway on the northbound and southbound inside mainline and on the southbound managed lanes
- Del Lago overcrossing on the southbound inside mainline and on the northbound and southbound managed lanes
- Citracado Parkway managed lanes

At numerous other locations geometry of the planned improvements would require nonstandard shoulder widths. These locations are:

- Sabre Springs DAR on the northbound inside mainline
- Between Sabre Springs DAR and 15/56 Separation on the southbound inside mainline

At other locations, constraints such as existing bridge columns, would require nonstandard shoulder widths to be used. These locations are:

- Most southern northbound entrance northbound inside mainline
- Route 163/15 connection on the southbound inside mainline
- Between Mira Mesa Boulevard and Poway Road on the northbound inside main lane

At other locations, constraints due to structure cost would require nonstandard shoulder widths to be used. These locations are:

- At the H Avenue overcrossing on the right managed lanes
- Route 163/15 connection on the southbound inside mainline
- Camino del Norte on the northbound managed lanes
- Lake Hodges Bridge on the southbound inside mainline and managed lanes

Reduced shoulder widths would be required on several ramps due to right-of-way constraints. The ramp locations are:

- Miramar Road overcrossing on the southbound loop on ramp
- Sabre Springs DAR and 15/56 separation on the northbound loop on ramp
- Del Lago Boulevard northbound off ramp, northbound off ramp DAR, southbound on ramp, and northbound off ramp
- Ninth Avenue southbound on ramp

Reduced shoulder widths would be required on several ramps due sign structures and possible future value pricing gantries. The ramp locations are:

- Hillery Drive DAR on the northbound mainline and managed lanes
- Managed lanes at grade access exit between Mira Mesa Boulevard and Mercy Road on the southbound mainline and managed lanes
- Between Mercy Road and Poway Road on the northbound and southbound mainline and managed lanes
- Managed lanes at grade access exit between Mercy Road and Poway Road on the southbound mainline and managed lanes
- Between Poway Road and 15/56 on the southbound mainline and managed lanes
- Managed lanes at grade access exit at Camino del Norte on the northbound mainline and managed lanes
- Managed lanes at grade access exit at Rancho Bernardo Road on the northbound mainline and managed lanes
- Managed lanes at grade access exit at Green Valley Creek on the northbound mainline and managed lanes

Design exceptions for sight distance, or the continuous length of freeway ahead visible to the driver, would be required in numerous areas due to existing conditions. These locations are:

- Near the 163/15 merge
- North end of the existing reversible lanes
- Duenda Road
- Sabre Springs DAR overcrossing

Interchange spacing design exceptions would be required at numerous areas. Interchange spacing consists of the distance between interchanges where ramp placement and merge areas are located. The majority of these exceptions are required due to already existing conditions. Exceptions to interchange spacing would be required at the following locations:

- Between SR-163/I-15 interchange and Miramar Way
- Miramar Road to Carroll Canyon Road
- Mercy Road to Rancho Penasquito/Poway Road
- Rancho Penasquito/Poway Road to SR-56/I-15
- SR-56/I-15 interchange to Carmel Mountain Road
- Bernardo Center Drive to Rancho Bernardo Road
- Via Rancho Parkway Centre City Parkway
- Ninth Avenue to Valley Parkway
- Valley Parkway to SR-78

Interchange spacing design exceptions would be required at several weave lane locations. The majority of these exceptions are required due to already existing conditions. Exceptions to interchange spacing (weave lanes) would be required at the following locations:

- Southbound Miramar Way on ramp to southbound SR-163/I-15 off ramp
- Northbound Miramar Way on ramp to Northbound Miramar off ramp
- Northbound Miramar Road on ramp to northbound Carroll Canyon Road off ramp
- Southbound Carroll Canyon Road on ramp to southbound Miramar Road off ramp

- Southbound SR-56/I-15 on ramp to southbound Rancho Penasquito/Poway Road off ramp
- Northbound SR-56/I-15 on ramp to northbound Carmel Mountain Road off ramp
- Southbound Carmel Mountain Road on ramp to southbound SR-56/I-15 off ramp
- Northbound Bernardo Center Drive to northbound Rancho Bernardo Road off ramp
- Southbound Centre City Parkway on ramp to southbound Via Rancho Parkway off ramp
- Northbound Ninth Avenue on ramp to northbound Valley Parkway off ramp
- Southbound Valley Parkway on ramp to southbound Ninth Avenue off ramp
- Northbound Valley Parkway on ramp to northbound SR-78 off ramp
- Southbound SR-78 on ramp to southbound Valley Parkway off ramp

Design exceptions for horizontal clearance to fixed objects, or the distance to a fixed object, would be required in numerous areas due to right-of-way constraints, structure costs, or due to existing conditions. These locations are:

- Northbound Entrance south of H Avenue on the northbound mainline
- H Avenue overcrossing right Managed Lanes
- SR-163/I-15 interchange overcrossing southbound mainline and managed lanes
- Sabre Springs DAR and 15/56 Separation on the northbound inside mainline
- Carmel Mountain Road northbound and southbound inside mainline
- Camino del Norte on the northbound managed lanes
- Duenda Road overcrossing on the northbound and southbound inside mainline
- Highland Valley Road/West Bernardo Drive overcrossing on the northbound and southbound inside mainline
- Lake Hodges Bridge on the southbound inside mainline and managed lanes
- Via Rancho Parkway on the northbound and southbound inside mainline and on the southbound managed lanes
- Del Lago overcrossing on the southbound inside mainline and on the northbound and southbound managed lanes
- Del Lago Boulevard DAR northbound and southbound on and off ramps
- Citracado Parkway managed lanes
- Ninth Avenue southbound on ramp

Superelevation exceptions, or exceptions to the pitch of the roadway, would be required due right-of-way constraints. These locations are:

- Miramar Road/Pomerado Road northbound off ramp
- Poway Road northbound off ramp
- Sabre Springs northbound managed lanes off ramp and DAR
- Carmel Mountain Road off ramp
- Rancho Bernardo Road off ramp
- Hale Avenue

Temporary design exceptions for vertical clearance, or the distance from the roadway to overhead structures, would be required in numerous areas to avoid lowering roadways during construction. These locations are:

- Mira Mesa Boulevard
- Felicita Avenue
- Citracado Parkway
- West Washington Avenue OH

Design exceptions for ramp departure angles, or the angle in which the ramp enters or exits the freeway, would be required in numerous areas due to right-of-way or design constraints. These locations are:

- Miramar Way northbound off ramp
- Carroll Canyon Road northbound and southbound off ramps
- Hillery DAR northbound and southbound managed lanes DAR
- Poway Road southbound off ramp
- Sabre Springs DAR northbound off ramp and southbound managed lane DAR
- SR-56/I-15 separation southbound off ramp
- Camino del Norte northbound and southbound off ramps
- Rancho Bernardo northbound and southbound managed lanes DAR
- Rancho Bernardo Road southbound off ramp
- Highland Valley Road/West Bernardo southbound off ramp
- Via Rancho Parkway southbound off ramp
- Citracado Parkway southbound off ramp
- Del Lago northbound and southbound managed lanes DAR

Design exceptions are required for converging dimensions at on ramps at several locations. Converging dimensions refer to standards that are set in the Department's design manual for off-sets, lengths, and angles of an onramp merging into the main lanes. The locations where these exceptions would be required are:

- Near SR-163/I-15 merge at the northbound on ramp extending from 163 to I-15
- Miramar Way northbound on ramps
- Hillery Drive northbound and southbound DAR on ramps
- Mira Mesa Boulevard northbound loop on ramps
- Sabre Springs Temporary slip ramp
- Rancho Bernardo northbound and southbound DAR
- Ranch Bernardo Road northbound on ramp
- Centre City Parkway southbound on ramp
- Del Lago Boulevard northbound and southbound DAR
- Citracado Parkway southbound on ramp
- Ninth Avenue southbound on ramp

Exceptions for vertical alignment to reduce the minimum length of the vertical curve and to reduce sight distance and the resulting design speed would be required at various location on both the northbound and southbound main lines. In addition an exception would be required on the Sabre Springs DAR southbound off ramp and slip ramp.

Exceptions to the minimum median width, distance between northbound and southbound lanes, would be required in the northern section due to right-of-way constraints . In addition an exception would be required on the Sabre Springs DAR southbound off ramp and slip ramp.

Exceptions to the two lane exit ramp standard, or the number of lanes required on each exit ramp, would be required due to right-of-way and design constraints. These locations are:

- Reversible HOV lanes southbound exit to SR-163
- Miramar Way northbound exit
- Mira Mesa Boulevard northbound and southbound off ramps
- Carmel Mountain Road southbound exit

Exceptions to the minimum length required for auxiliary lanes would be required at the auxiliary lane proposed in the northbound direction extending from Miramar Road to Carroll Canyon road due to right-of-way constraints.

Management Strategies for Excess Capacity

The Managed Lanes Project would provide a high quality level of service to HOVs, buses, and possibly managed SOVs if the new Value Pricing Program is approved and implemented as a future separate project. Value pricing is the ability to manage extra capacity by allowing single occupant vehicles(SOV) to pay to use the lanes when extra capacity exists.

Current legislation for this project allows for excess capacity to be sold on the HOV lanes as long as a level of service (LOS) D or better is maintained. LOS is a traffic measurement that measures the operating conditions that a motorist would experience while traveling on a particular facility in terms of speed, travel time, freedom to maneuver, comfort, and safety. LOS is determined for each facility based on the number of lanes and traffic volume (number of vehicles per hour or day) and other factors. LOS designations range from “A”, the highest quality of service with little or no restrictions on speed or maneuverability to “F”, stop and go conditions with considerable delays. LOS definitions can generally be categorized as shown in Figure 2-31.

With the Value Pricing Program, the managed lanes would be monitored to ensure that none of the three user groups experience less than Level of Service D (Approx. – 1600 - 1800 vehicles per hour/ lane) in year 2020. Currently, the existing reversible lanes are managed with this same criteria and at peak times contain approximately 1000 to 1,150 vehicles per hour/ lane.

SANDAG has recently secured FHWA funds for a new Value Pricing proposal under Transportation Equity Act for the 21st Century (TEA-21). This program, entitled the San Diego I-15 Value Pricing Program, is currently evaluating the feasibility of a pricing project that would utilize the excess capacity of the I-15 Managed Lane facility. Revenue raised, above the administration and operating costs, could be used for the BRTS or to make main lane improvements. The program would be implemented upon the opening of each segment of the project.

The San Diego I-15 Value Pricing Program proposal differs from the current I-15 pricing project in San Diego County in that the 32 kilometer(20-mile) managed lane facility will have DARs and intermediate access points that serve both directions during peak and non-peak periods. Because the managed lanes can be accessed from several locations, the program requires consideration of different pricing strategies such as incorporating dynamic pricing with distance traveled. The current pricing project does not include a distance variable in the pricing system.

Another difference between the San Diego I-15 Value Pricing Program and the current I-15 pricing project is that the new program would include pricing traffic in the peak and reverse commute directions, unlike the existing two-lane reversible facility that serves only the peak commute direction. This provides an opportunity to learn about how pricing effects usage of a facility in the reverse commute direction that typically does not have the same level of congestion.

Also, the managed lane facility will be open 24 hours per day.. The existing facility is currently closed from 7:00 p.m. to 5:45 a.m. and from 11:00 a.m. to 12 noon.

Finally, the San Diego I-15 Value Pricing Program will study the feasibility of allowing SOVs to use the DAR. Priority will be given to buses and HOVs on the DARs, but if determined feasible, SOVs may have access to the ramps as capacity allows. If SOV traffic is restricted during peak hours, the DAR will be signed for HOV traffic only and enforcement of violations will be by the California Highway Patrol (CHP). SOV traffic volumes will be managed through adjustments in the price to use the facility, including the DARs.

The technology that would be used to collect fees is Electronic Toll Collection (ETC) equipment, which would include overhead gantries and antennas to read transponders, variable message signs to display the tolls, loop or laser detectors to measure traffic volume and speed, and cameras to view traffic on the facility and to help determine violation rates.

If the Value Pricing program is not implemented, non-pricing management strategies would also be investigated as part of the Managed Lane Project. Non-pricing strategies could include allowing other vehicles, such as light service trucks, light delivery trucks, taxis, electric vehicles or other certified high-mileage vehicles to use the managed lanes without a fee.

Either management strategy would require State legislation and FHWA approval to authorize non-HOV type vehicles in the managed lanes. This legislation would describe the specifics and establish a minimum traffic level of service for the managed lanes.

2.2.2 No Build Alternative

The no build alternative assumes that no part of the proposed action would be constructed. Even though the managed lanes would not be built with this alternative, other operational improvements currently proposed would be made within the corridor. These operational improvements and other related projects by themselves would not reduce travel times in the design year of 2020. Improvements include auxiliary/added lanes extending northbound and southbound near Mira Mesa Boulevard, Ted Williams Boulevard, and Citracado Parkway. These additional projects are discussed in more detail in the cumulative impact section located in Chapter 4. With the no build alternative southbound AM peak delays would range from five minutes near Miramar Road to 60 minutes near Lake Hodges Bridge.

In the northbound PM peak delays would range from 56 minutes at Mira Mesa Boulevard to four minutes near the Lake Hodges Bridge. With this alternative there would not be a reduction in commuter travel times given the projected 2020 traffic volumes; thus, the purpose and need would not be met by the no build alternative.

With the current LOS at D (40 mph) or worse during the peak periods travel time, it takes approximately 50-60 minutes to drive the entire 32 kilometer (20 mile) corridor. This duration would increase to well over 80-90 minutes for the 2020 No Build alternative. In addition, as demand on the interstate increases more traffic would be forced to use surrounding arterials or the peak traffic period would expand since the trip times would increase. Figure 2-34: “No Build” Peak Period, shows how the peak period would expand as traffic increases.

With this alternative main freeway lane congestion would continue to worsen, resulting in even more extensive queues. In the southbound direction, I-15 would have a morning queue extending from the Lake Hodges Bridge to beyond SR-78.

Eastbound SR-78 approaching I-15 would also have an extensive queue. In the northbound direction, I-15 would have an afternoon queue extending to SR-94. Northbound SR-163 approaching the I-15 junction would have a queue extending to downtown San Diego. Queues of this length are difficult to estimate and traffic would seek other alternatives, where possible. However, as discussed in Chapter 1, the only other north-south freeway between downtown San Diego and the northern portion of San Diego County is I-5. Figure 2-31 shows the 1999 and 2020 traffic LOS for the No Build Alternative.

In addition, this alternative would not address public concern for worsening congestion, lengthening freeway queues, and unacceptable delays. Overall, it would ignore efforts of agencies, local governments, and others working cooperatively to develop a plan to correct growing transportation problems in the corridor. However, the impacts associated with the Managed Lanes Project would not occur under the no build alternative. It would not assist in meeting the goals of the 2020 RTP or the District System Management Plan.

2.2.3 Transportation System Management Alternative

Transportation System Management (TSM) element is an approach to solving transportation problems by improving the efficiency of the existing system. System capacity can be increased by encouraging greater ridesharing, designating HOV lanes, and by adjusting ramp meter timing. The Department promotes TSM programs; however, many of the improvements that are typically associated with the TSM alternative already exist within the corridor such as ramp metering and the HOV lanes. Any additional improvements would only result in temporary reductions in congestion and would not accommodate additional demand that will exist in 2020.

2.3 Alternatives Considered and Eliminated

Several alternatives were dropped early in the planning process since they did not meet the purpose and need for the project.

For all of the alternatives dropped from consideration, the environmental impacts would have been similar to those presented in Chapter 3 for the proposed project. The differences in impacts would be a minor reduction in impacted coastal sage scrub (CSS), wetlands, trails, and visual impacts based on the number of lanes constructed and the presence or absence of the direct access ramps (DAR).

Direct access ramps are described in Section 2.2.1 under the Operational Features heading. Following is a brief discussion of those alternatives dropped from consideration.

Three Managed Lanes (2+1) Configuration

This alternative proposed three managed lanes in the median. It would have utilized a movable barrier to adjust the lane configurations. Two lanes would be permitted in the peak direction and one lane in the reverse-peak direction. One lane in the reverse peak direction was necessary to ensure reliable trip time for the BRTS, but a 3+0 configuration would have been available to handle emergencies or special events. Traffic analysis showed the alternative would not have supported the BRTS by the year 2020. Finally, it would be inadequate to handle traffic volumes in the southern section of the proposed project before 2015 and for the middle section of the proposed project by the year 2020.

1+1 HOV Configuration with Reversible Lanes

This variation proposed to add two lanes, one in each direction between SR-56 and SR-78, and would keep only the existing reversible lanes south of SR-56 in operation. It did not include direct access ramps because one HOV lane in each direction would be expected to be over capacity. In addition this variation would not support the BRTS that requires free flowing traffic to maintain operations. Traffic analysis showed that excessive congestion would develop in both the northbound and southbound directions during peak commute times. The HOV lanes would become congested by the year 2006 and the buses would not be able to function as a rapid system.

Extend existing Reversible Lanes

This alternative would have extended the existing two reversible lanes in the median from SR-56 to SR-78. Access to the facility would be restricted to selected interchanges that would have direct access ramps (DAR) in and out of the facility. It would provide some of the same traffic improvements as the 2+2 HOV Alternative (discussed in this Chapter) and the Three Managed Lane 2+1 configuration in the peak direction. However, there would be no improvements in the reverse peak direction, which is already experiencing some congestion.

The alternative would also preclude the BRTS since it needs free flowing conditions in the reverse peak direction to maintain the rapid bus service schedules. Without the transit element the project would not implement smart growth principles. This alternative would have precluded some areas in the corridor from using the facility based on the few selected access interchanges.

Because alternatives to drive alone trips, such as BRTS and HOV, can not be accommodated, the proposed project objectives and the purpose and need for the project would not be met.

2+2 HOV Alternative

This alternative proposed four HOV lanes, two in each direction from SR-163 to SR-78. The HOV lanes would be accessible from the median at locations spaced approximately 3.2 km to 4.8 km (2-3 miles) apart. It proposes to convert the existing reversible express lanes that extend from SR-163 to SR-56 to two HOV lanes.

South of Miramar Road/ Pomerado Road overcrossing the existing median is extra wide. This allows for the use of the existing reversible lanes for the two southbound HOV lanes. The northbound HOV lanes could be placed in the median with less outside widening than the proposed project.

North of Miramar Road/ Pomerado Road Overcrossing the existing reversible lanes would be used as northbound HOV lanes to avoid right-of-way impacts. Because the southbound HOV lanes would then be placed entirely left of the existing reversible lanes, widening on the southbound side is sometimes greater than the Managed Lane Alternative (discussed in Section 2.2.1). However, the amount of northbound widening is reduced substantially.

By the year 2020, during the AM peak traffic period, bottlenecks would occur at Miramar Road, Mira Mesa Boulevard, SR-56, Lake Hodges, and around Via Rancho Parkway. General congestion would extend from Miramar Road to Deer Springs Road with speeds in the corridor ranging from 10 to 30 miles per hour. In the PM peak, bottlenecks would occur at Miramar Road, Mira Mesa Road, Rancho Peñasquitos Boulevard, SR-56 and at Lake Hodges. General congestion would extend from University Avenue, near downtown San Diego, to Lake Hodges with average speeds ranging from 11 to 32 miles per hour.

Traffic analysis showed that many interchanges in the corridor would be deficient in capacity. This would result in queues extending back onto the freeway by the year 2020.

Therefore, the 2+2 HOV Alternative does not meet the purpose and need for the I-15 corridor and the region.

GENERAL PURPOSE (MIXED FLOW) LANES ALTERNATIVE

This alternative would add one, two or three general purpose (mixed flow) lanes in each direction. One variation in this alternative also converted the existing reversible lanes to general purpose lanes. This alternative would not construct the direct access ramps for use by BRTS and HOV. Although this alternative (the three-lane variation) would provide some short-term congestion relief, congestion would return before 2015.

The alternative does not meet the Purpose and Need for the proposed project in the following ways:

- It does not enhance transit in the corridor by accommodating a High-Speed Bus Rapid Transit System since it does not have free flowing lanes or direct access.
- It does not compliment “smart growth” land use strategies since it does not enhance connections between residential, employment centers, or other places of importance.
- It does not assist in meeting commitments of the District's HOV Plan or 2020 RTP

For the reasons stated above, this alternative was rejected from further consideration.